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ВЛИЯНИЕ ИСХОДНОГО ВЕЩЕСТВА НА ВЫХОД МЕРКАРБИДА ПРИ СИНТЕЗЕ

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Образование полимерного ртуть – углеродного каркаса наблюдается при использовании различных органических субстратов. В таблице показаны выходы меркарбида при реакции красного оксида ртути с различными соединениями.

Спирты

CH_3OH	C_2H_5OH	C_3H_7OH	i-C_3H_7OH
< 0,5	55,11	34,87	41,01
C_4H_9OH	$C_7H_{15}OH$	3-$C_7H_{15}OH$	$C_{12}H_{25}OH$
14,96	2,43	4,62	< 0,5

Альдегиды и кетоны

HCHO	CH_3CHO	CH_3COCH_3
< 0,5	11,27	21,58

CH_3CHO	CH_3COCH_3
11,27	21,58

Для спиртов на первой стадии происходит параллельное образование соответствующих альдегидов, и их дальнейшая альдольная конденсация, олигомеризация и осмоление. Низкая конверсия по спиртам, и особенно по альдегидам, вызвана, очевидно, тем, что реакция протекает через образование альдегидов на первой стадии.

Таким образом, селективность образования меркарбидов из различных органических субстратов определяется скоростями параллельных реакций меркурирования, образования карбонильной группы и последовательных реакций конденсации.

DETERMINATION OF MERCARBIDE SURFACE

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Mercarbide, $[CHg_4O_2](OH)_2$, is a mercury derivative of methane in which all of the methane hydrogen atoms are substituted by mercury atoms. Mercarbide exhibits basic and anion exchange properties in addition to showing unique stability towards mineral acids as well as oxidizing and re-

ducing agents. The selectivity of mercarbide towards organic anions shows selectivity dependence on the size and configuration of the pendant hydrocarbon group.

The scientific interest in mercarbide arises from its unique properties and amazing stability. Thus mercarbide does not undergo changes in the presence of acids and bases and is stable towards oxidizing and reducing agents. Even long heating in HNO_3/HCl does not result in visible changes in its structure. However, the mercury present in mercarbide limits its development for industrial applications, especially with the present-day ecological limits.

The indicator method can express the strength of basic sites in a definite scale of H_0, but this has disadvantages too. Although the color change is assumed to be the result of an acid-base reaction, an indicator may change its color by reaction different from an acid-base reaction. In addition, it requires a long time for benzoic acid to reach an adsorption equilibrium when titration is carried out in a solution. In some case the surface of solid may dissolved into a titration solution. If this happens, the number of basic sites should be overestimated.

In this study characterization and surface basicity of mercarbide were investigated with Hammett basicity functions, the benzoic acid titration method, with direct acid-base titration with mineral acid and with ion-exchange with alcoxides. Mercarbide has a basic strength of $H_0 > 15.0$, Bronsted sites predominate on the surface of mercarbide.

HYDROXIDE CLAYS AS SOLID BASE CATALYSTS

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There are a large number of important chemical processes, which are homogeneously catalysed, in particular polymerisation, oligomerisation, alkylation, hydrogenation and dehydrogenation, oxidation etc. At the same time, catalysts, with proven basic catalytic sites, capable to display the base properties in a wide range of pK_a, insoluble in the reaction mixture, stable to effects of temperature and substrates, are hardly known.

The existing base catalysts, such as alkali and alkali-earth metals, their oxides and hydroxides and anion-exchange resins, are thermally and chemically unstable compounds and materials.

The search for heterogeneous base catalysts should be carried out among the substances of inorganic nature, especially, among inorganic anion exchangers. To solve this problem there is the need to: